DB Name	Query	Hit Count	Set Name
USPT	l15 and (reflectance)	2	L22
USPT	l15 and (total internal reflection)	2	L21
USPT	l15 and (total internal reflectance)	0	L20
USPT	l15 and (surface plasmon resonance)	4	L19
USPT	l15 and (surface plasmon resonant)	0	L18
USPT	l15 and (resonant mirror)	0	L17
USPT	l15 and (surface plasmon ressonance)	0	L16
USPT	l12 and (sensor or biosensor)	205	L15
USPT	l12 and (sensor or biosensor)	205	L14
USPT	l12 and sensor or biosensor	1770	L13
USPT	(porous or porosity or membrane) same laminar	1261	L12
USPT	l10 and biosensor	1	L11
USPT	(capillary or groove) same laminar	976	L10
USPT	l8 and biosensor	7	L9
USPT	channel same laminar	1745	L8
USPT	l5 and (porous or porosity or membrane)	6	L7
USPT	l3 and laminar	0	L6
USPT	l4 and (porous or porosity or channel or membrane)	8	L5
USPT	l3 and refractive index	14	L4
USPT	l2 and (antibody or antibodies or protein or biotin or enzyme)	15	L3
USPT	l1 and (sensor or biosensor)	100	L2
USPT	(resonant mirror) or (frustrated total internal reflect$7)	261	L1

US-PAT-NO: 5055265
DOCUMENT-IDENTIFIER: US 5055265 A

TITLE: Biological sensors

DATE-ISSUED: October 8, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Finlan; Martin F.	Aylesbury	N/A	N/A	GB2

US-CL-CURRENT: 422/82.05; 356/318, 356/445, 422/66, 422/68.1, 422/82.09, 435/808, 436/44, 436/805

ABSTRACT:

The present invention is drawn to a surface plasmon resonance (SPR) sensor in which the phenomenon of long-range surface plasmon resonance is used to develop a highly sensitive detector for use in biological, biochemical or general chemical testing. The sensor includes a laminar structure having of a high refractive index glass block, a membrane of dielectric material, a thin metal layer, and a sensitive layer. A sample to be tested is brought into contact with the sensitive layer. The refractive index of the dielectric layer and that of the layer (sensitive layer/sample) on the opposite side of the metallic layer should be equal, or nearly so, and the refractive index of the glass block should be higher than this so that total internal reflection takes place at the interface between the block and the membrane. Light from a laser source is totally internally reflected at this interface, and the strength of the reflected beam is monitored by a light detector. Provided conditions are correct, long-range SPR will take place which will sensitively alter the strength of the light in dependence upon the progress of the reaction between the sensitive layer and sample.

23 Claims, 3 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 2

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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 6078705 A

L19: Entry 1 of 4 File: USPT Jun 20, 2000

US-PAT-NO: 6078705
DOCUMENT-IDENTIFIER: US 6078705 A

TITLE: Sensor platform and method for the parallel detection of a plurality of analytes using evanescently excited luminescence

DATE-ISSUED: June 20, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Neuschafer; Dieter	Muttenz	N/A	N/A	CHX
Duveneck; Gert Ludwig	Bad Krozingen	N/A	N/A	DEX
Pawlak; Michael	Laufenburg	N/A	N/A	DEX
Pieles; Uwe	Schliengen	N/A	N/A	DEX
Budach; Wolfgang	Marly	N/A	N/A	CHX

US-CL-CURRENT: 385/12; 385/37

ABSTRACT:

The invention relates to a sensor platform based on at least two planar, separate, inorganic dielectric waveguiding regions on a common substrate and to a method for the parallel evanescent excitation and detection of the luminescence of identical or different analytes. The invention relates also to a modified sensor platform that consists of the sensor platform having the planar, separate, inorganic dielectric waveguiding regions and one or more organic phases immobilised thereon. A further subject of the invention is the use of the sensor platform or of the modified sensor platform in a luminescence detection method for quantitative affinity sensing and for the selective quantitative determination of luminescent constituents of optically opaque solutions.

26 Claims, 15 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 6

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 6066448 A

L19: Entry 2 of 4 File: USPT May 23, 2000

US-PAT-NO: 6066448
DOCUMENT-IDENTIFIER: US 6066448 A

TITLE: Multi-array, multi-specific electrochemiluminescence testing

DATE-ISSUED: May 23, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wohlstadter; Jacob N.	Cambridge	MA	N/A	N/A
Wilbur; James	Rockville	MD	N/A	N/A
Sigal; George	Gaithersburg	MD	N/A	N/A
Martin; Mark	Rockville	MD	N/A	N/A
Guo; Liang-Hong	Laurel	MD	N/A	N/A
Fischer; Alan	Cambridge	MA	N/A	N/A
LeLand; Jon	Silver Spring	MD	N/A	N/A

US-CL-CURRENT: 435/6; 204/400, 422/102, 422/58, 422/61, 422/82.01, 435/287.1, 435/287.2, 435/4, 435/7.1, 435/7.2, 436/172, 436/518, 436/806

ABSTRACT:

Materials and methods are provided for producing patterned multi-array, multi-specific surfaces which are electronically excited for use in electrochemiluminescence based tests. Materials and methods are provided for the chemical and/or physical control of conducting domains and reagent deposition for use in flat panel displays and multiply specific testing procedures.

119 Claims, 62 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 26

☐ 3. Document ID: US 5922594 A

L19: Entry 3 of 4 File: USPT Jul 13, 1999

US-PAT-NO: 5922594
DOCUMENT-IDENTIFIER: US 5922594 A

TITLE: Method of producing bilayer lipid membranes

DATE-ISSUED: July 13, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lof.ang.s; Stefan	Uppsala	N/A	N/A	SEX

US-CL-CURRENT: 358/1.15; 264/4.1, 422/57, 424/420, 424/450, 427/2.14, 436/13

ABSTRACT:

Methods are disclosed for producing a substrate surface supporting a continuous planar bilayer lipid membrane by covalently binding a plurality of micellar of vesicle liposomes, optionally comprising a membrane protein or other biologically active membrane-bound component, to a substrate surface supporting a self-assembled monolayer (SAM) of essentially straight long chain molecules. In one embodiment, the micellar or vesicle liposomes covantly bind to hydrophilic spacer molecules attached to the functional groups of the self-assembled monolayer.

17 Claims, 3 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 3

☐ 4. Document ID: US 5055265 A

L19: Entry 4 of 4 File: USPT Oct 8, 1991

WEST

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Search Results - Record(s) 1 through 10 of 15 returned.

1. Document ID: US 5937557 A

L3: Entry 1 of 15 File: USPT Aug 17, 1999

US-PAT-NO: 5937557
DOCUMENT-IDENTIFIER: US 5937557 A

TITLE: Fingerprint-acquisition apparatus for access control; personal weapon and other systems controlled thereby

DATE-ISSUED: August 17, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowker; J. Kent	Essex	MA	N/A	N/A
Lubard; Stephen C.	Woodland Hills	CA	N/A	N/A

US-CL-CURRENT: 42/70.01; 102/472, 42/84

ABSTRACT:

At a first end of an optic-fiber prism assembly are fiber terminations to contact a relieved surface, e. g. finger (stabilized by a handgrip). In a region where fiber diameter is essentially constant with longitudinal position, light enters the prism, crosses the fibers and enters individual fibers through their sidewalls, lighting the terminations. To allow crosslighting of the assembly, the fiber-optic numerical aperture (NA) is small: preferably not exceeding one-half. Due to fingerprint etc. detail, fractions of light pass along the fibers; at the assembly second end a detector responds with an electrical-signal array based on the surface relief. The signals are processed to check finger etc. identity and applied to control access to a personal weapon, other equipment, facilities, data, or a money service. FTIR ("frustrated total internal reflection") bright- and dark-field versions have various benefits. For use of small, low-cost detectors--and/or internal-mirror versions that light the finger straight-on--the assembly has a separate element, e. g. a high-NA fiber-optic taper with extramural absorption or "EMA" material (no entry light crosses it). For a weapon, a unitary antibypassing module (which matches a weapon port, and must be present) holds part of the access-control and firing systems. Bullets etc. fire only on a special signal from the module.

17 Claims, 24 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 8

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

2. Document ID: US 5869748 A

L3: Entry 2 of 15 File: USPT Feb 9, 1999

US-PAT-NO: 5869748
DOCUMENT-IDENTIFIER: US 5869748 A

TITLE: Acoustic monitor assembly

DATE-ISSUED: February 9, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stevenson; Adrian Carl	Cambridge	N/A	N/A	GB3
Marks; Robert Steven	Rehovot	N/A	N/A	ILX

US-CL-CURRENT: 73/53.01; 324/204, 324/239, 435/287.1, 435/39, 73/579, 73/61.75, 73/643, 73/863.22

ABSTRACT:

An acoustic monitor assembly for monitoring the particulate content of a liquid, comprising, a body having an electrically conductive portion, the body contacting a liquid whose content is to be monitored in use, a magnetic field generator for generating a magnetic field to which the electrically conductive portion of the body is exposed, the magnetic field generator being positioned such that magnetic particulates in the liquid are drawn on to said body, and a signal generator for inducing eddy currents which oscillate at an acoustic frequency in the electrically conductive portion of the body and in response to which the body is caused to vibrate, and a monitoring for observing the vibration condition of the body so as to provide an indication of the content of said particulates which are drawn onto the body in the liquid.

18 Claims, 10 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 3

☐ 3. Document ID: US 5856203 A

L3: Entry 3 of 15 File: USPT Jan 5, 1999

US-PAT-NO: 5856203
DOCUMENT-IDENTIFIER: US 5856203 A

TITLE: Sensor device for sandwich assay

DATE-ISSUED: January 5, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Robinson; Grenville Arthur	London	N/A	N/A	GBX
Fletcher; Janys	Bagshot	N/A	N/A	GBX

US-CL-CURRENT: 436/518; 385/12, 385/129, 385/130, 422/55, 422/57, 422/58, 422/82.05, 422/82.08, 422/82.09, 422/82.11, 435/287.1, 435/287.2, 435/287.9, 435/288.7, 435/808, 436/164, 436/165, 436/172, 436/524, 436/527, 436/528 , 436/531, 436/805

ABSTRACT:

Sensor devices for use in assaying for a ligand in a sample are described, the devices comprising: i) a discrete zone ("the measurement zone") on a region of which ("the measurement region") is immobilized directly or indirectly a first specific binding partner for the ligand under assay (or a reagent precomplexed with or capable of forming a complex with a specific binding partner for the ligand under assay), which zone additionally contains in releasable form, a first known amount of an optionally labelled second specific binding partner for the ligand under assay, the second specific binding partner being directed to an epitope of the ligand assay different to the epitope to which the first specific binding partner is directed; and ii) a second discrete zone ("the reference zone") on a region of which is immobilized directly or indirectly a first specific binding partner for the ligand under assay (or a reagent precomplexed with or capable of forming a complex with a specific binding partner for the ligand under assay), which zone additionally contains, in releasable form, a known amount of ligand analogue and separately contains, in releasable form, a second known amount of an optionally labelled second specific binding partner for the ligand under assay as defined above, said second known amount being less than the aforementioned first known amount in the measurement zone. Methods of sandwich assay using such devices are also described.

19 Claims, 9 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 4

☐ 4. Document ID: US 5812252 A

L3: Entry 4 of 15 File: USPT Sep 22, 1998

US-PAT-NO: 5812252
DOCUMENT-IDENTIFIER: US 5812252 A

TITLE: Fingerprint--Acquisition apparatus for access control; personal weapon and other systems controlled thereby

DATE-ISSUED: September 22, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowker; J. Kent	Essex	MA	N/A	N/A
Lubard; Stephen C.	Woodland Hills	CA	N/A	N/A

US-CL-CURRENT: 356/71; 250/227.11, 250/227.2, 340/825.3, 340/825.31, 340/825.34, 348/156, 348/161, 382/116, 382/117

ABSTRACT:

At a first end of an optic-fiber prism assembly are fiber terminations to contact a relieved surface, e.g. finger (stabilized by a handgrip). In a region where fiber diameter is essentially constant with longitudinal position, light enters the prism, crosses the fibers and enters individual fibers through their sidewalls, lighting the terminations. To allow crosslighting of the assembly, the fiber-optic numerical aperture (NA) is small: preferably not exceeding one-half. Due to fingerprint etc. detail, fractions of light pass along the fibers; at the assembly second end a detector responds with an electrical-signal array based on the surface relief. The signals are processed to check finger etc. identity and applied to control access to a personal weapon, other equipment, facilities, data, or a money service. FTIR ("frustrated total internal reflection") bright- and dark-field versions have various benefits. For use of small, low-cost detectors--and/or internal-mirror versions that light the finger straight-on--the assembly has a separate element, e.g. a high-NA fiber-optic taper with extramural absorption or "EMA" material (no entry light crosses it). For a weapon, a unitary antibypassing module (which matches a weapon port, and must be present) holds part of the access-control and firing systems. Bullets etc. fire only on a special signal from the module.

79 Claims, 24 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 8

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

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☐ 5. Document ID: US 5637458 A

L3: Entry 5 of 15 File: USPT Jun 10, 1997

US-PAT-NO: 5637458
DOCUMENT-IDENTIFIER: US 5637458 A

TITLE: Apparatus and method for the detection and assay of organic molecules

DATE-ISSUED: June 10, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Frankel; Robert	Rochester	NY	N/A	N/A
Forsyth; James M.	Macedon	NY	N/A	N/A

US-CL-CURRENT: 435/6; 356/244, 356/318, 422/55, 422/57, 422/82.01, 422/82.05, 435/7.1, 436/149, 436/164, 436/527, 436/807

ABSTRACT:

A system for biomolecular separation and detection of a molecular species includes a solid state laser detector having a sample channel therein. The presence of a molecular species is indicated by a frequency shift in the laser's output, which is detected by optical heterodyning the laser's output with the output of a reference laser. The interior of the sample channel is optionally coated with a ligand for binding the molecular species of interest. The system involves preprocessing a sample by electroosmotic separation in channels that are lithographically formed in a two-dimensional planar substrate. Molecular separation is also accomplished in a nanostructural molecular sieve comprising spaced apart posts defining narrow channels therebetween.

32 Claims, 18 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 14

☐ 6. Document ID: US 5538850 A

L3: Entry 6 of 15 File: USPT Jul 23, 1996

US-PAT-NO: 5538850
DOCUMENT-IDENTIFIER: US 5538850 A

TITLE: Apparatus and method for intracavity sensing of microscopic properties of chemicals

DATE-ISSUED: July 23, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	N/A	N/A
Seher; Jens-Peter	Stuttgart	N/A	N/A	DEX

US-CL-CURRENT: 435/6; 356/136, 356/301, 356/352, 385/12, 385/36, 422/55, 422/57, 422/82.05, 422/82.08, 422/82.11, 435/287.2, 435/288.7, 435/7.1, 435/808, 436/164, 436/172, 436/518, 436/527, 436/805

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index, and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

29 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 7. Document ID: US 5514596 A

L3: Entry 7 of 15 File: USPT May 7, 1996

US-PAT-NO: 5514596
DOCUMENT-IDENTIFIER: US 5514596 A

TITLE: Method for intracavity sensing of macroscopic properties of chemicals

DATE-ISSUED: May 7, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	94301	N/A
Seher; Jens-Peter	D-7000 Stuttgart 70	N/A	N/A	DEX

US-CL-CURRENT: 436/164; 356/352, 385/36, 436/171, 436/172, 436/805

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index, and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

5 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 8. Document ID: US 5491556 A

L3: Entry 8 of 15 File: USPT Feb 13, 1996

US-PAT-NO: 5491556
DOCUMENT-IDENTIFIER: US 5491556 A

TITLE: Analytical device with variable angle of incidence

DATE-ISSUED: February 13, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stewart; Douglas A.	Cambridge	N/A	N/A	GBX
Maule; Colin H.	Cambridge	N/A	N/A	GBX
Molloy; James O.	Newmarket	N/A	N/A	GBX

US-CL-CURRENT: 356/445; 356/128

ABSTRACT:

Apparatus for the determination of a chemical or biochemical species comprises a resonant optical biosensor (1-4) disposed in a light path between a pivotally-mounted source (5) of monochromatic light and a stationary detector (12) adapted to monitor some characteristic of the light. There is provided means (7) for causing pivotal motion of the light source (5) so as to vary the angle of incidence of the light on the sensor (1-4). Also provided is means for monitoring the instantaneous angle of incidence. The means for varying the angle of incidence of the light on the sensor may be a cam arrangement (7) acting on a pivoting member (6) carrying the light source (5), and the means for monitoring the instantaneous angle of incidence of the light on the sensor (1-4) may comprise means for monitoring the number of steps performed by a stepper motor driving the cam arrangement (7).

5 Claims, 3 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 1

☐ 9. Document ID: US 5437840 A

L3: Entry 9 of 15 File: USPT Aug 1, 1995

US-PAT-NO: 5437840
DOCUMENT-IDENTIFIER: US 5437840 A

TITLE: Apparatus for intracavity sensing of macroscopic properties of chemicals

DATE-ISSUED: August 1, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	N/A	N/A
Seher; Jens-Peter	Stuttgart	N/A	N/A	DEX

US-CL-CURRENT: 422/82.08; 356/136, 356/346, 422/82.11

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

14 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 10. Document ID: US 5434663 A

L3: Entry 10 of 15 File: USPT Jul 18, 1995

US-PAT-NO: 5434663
DOCUMENT-IDENTIFIER: US 5434663 A

TITLE: Analytical device

DATE-ISSUED: July 18, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Maule; Colin H.	Cambridge	N/A	N/A	GB3

US-CL-CURRENT: 356/300; 356/445

ABSTRACT:

A sensor, particularly a resonant optical biosensor based on the principle of frustrated total reflection, includes an optical structure comprising: a) a cavity layer (3) of transparent dielectric material of refractive index n.sub.3, b) a dielectric substrate (1) of refractive index n.sub.1, and c) interposed between the cavity layer (3) and the substrate (1), a dielectric spacer layer (2) of refractive index n.sub.2. The arrangement is such that the optical structure may be illuminated by a beam of incident radiation, internal reflection occurring at the interface between the substrate (1) and the spacer layer (2). The device is characterised in that the cavity layer (3) or the spacer layer (2) absorbs at the wavelength of the incident radiation. The cavity layer (3) or the spacer layer (2) comprises a material which is either absorbing or is doped with an absorbing species, most preferably a fluorophore.

11 Claims, 3 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 1

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☐ 1. Document ID: US 5937557 A

L7: Entry 1 of 6 File: USPT Aug 17, 1999

US-PAT-NO: 5937557
DOCUMENT-IDENTIFIER: US 5937557 A

TITLE: Fingerprint-acquisition apparatus for access control; personal weapon and other systems controlled thereby

DATE-ISSUED: August 17, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowker; J. Kent	Essex	MA	N/A	N/A
Lubard; Stephen C.	Woodland Hills	CA	N/A	N/A

US-CL-CURRENT: 42/70.01; 102/472, 42/84

ABSTRACT:

At a first end of an optic-fiber prism assembly are fiber terminations to contact a relieved surface, e. g. finger (stabilized by a handgrip). In a region where fiber diameter is essentially constant with longitudinal position, light enters the prism, crosses the fibers and enters individual fibers through their sidewalls, lighting the terminations. To allow crosslighting of the assembly, the fiber-optic numerical aperture (NA) is small: preferably not exceeding one-half. Due to fingerprint etc. detail, fractions of light pass along the fibers; at the assembly second end a detector responds with an electrical-signal array based on the surface relief. The signals are processed to check finger etc. identity and applied to control access to a personal weapon, other equipment, facilities, data, or a money service. FTIR ("frustrated total internal reflection") bright- and dark-field versions have various benefits. For use of small, low-cost detectors--and/or internal-mirror versions that light the finger straight-on--the assembly has a separate element, e. g. a high-NA fiber-optic taper with extramural absorption or "EMA" material (no entry light crosses it). For a weapon, a unitary antibypassing module (which matches a weapon port, and must be present) holds part of the access-control and firing systems. Bullets etc. fire only on a special signal from the module.

17 Claims, 24 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 8

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 5812252 A

L7: Entry 2 of 6 File: USPT Sep 22, 1998

US-PAT-NO: 5812252
DOCUMENT-IDENTIFIER: US 5812252 A

TITLE: Fingerprint--Acquisition apparatus for access control; personal weapon and other systems controlled thereby

DATE-ISSUED: September 22, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowker; J. Kent	Essex	MA	N/A	N/A
Lubard; Stephen C.	Woodland Hills	CA	N/A	N/A

US-CL-CURRENT: 356/71; 250/227.11, 250/227.2, 340/825.3, 340/825.31, 340/825.34, 348/156, 348/161, 382/116, 382/117

ABSTRACT:

At a first end of an optic-fiber prism assembly are fiber terminations to contact a relieved surface, e.g. finger (stabilized by a handgrip). In a region where fiber diameter is essentially constant with longitudinal position, light enters the prism, crosses the fibers and enters individual fibers through their sidewalls, lighting the terminations. To allow crosslighting of the assembly, the fiber-optic numerical aperture (NA) is small: preferably not exceeding one-half. Due to fingerprint etc. detail, fractions of light pass along the fibers; at the assembly second end a detector responds with an electrical-signal array based on the surface relief. The signals are processed to check finger etc. identity and applied to control access to a personal weapon, other equipment, facilities, data, or a money service. FTIR ("frustrated total internal reflection") bright- and dark-field versions have various benefits. For use of small, low-cost detectors--and/or internal-mirror versions that light the finger straight-on--the assembly has a separate element, e.g. a high-NA fiber-optic taper with extramural absorption or "EMA" material (no entry light crosses it). For a weapon, a unitary antibypassing module (which matches a weapon port, and must be present) holds part of the access-control and firing systems. Bullets etc. fire only on a special signal from the module.

79 Claims, 24 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 8

☐ 3. Document ID: US 5637458 A

L7: Entry 3 of 6 File: USPT Jun 10, 1997

US-PAT-NO: 5637458
DOCUMENT-IDENTIFIER: US 5637458 A

TITLE: Apparatus and method for the detection and assay of organic molecules

DATE-ISSUED: June 10, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Frankel; Robert	Rochester	NY	N/A	N/A
Forsyth; James M.	Macedon	NY	N/A	N/A

US-CL-CURRENT: 435/6; 356/244, 356/318, 422/55, 422/57, 422/82.01, 422/82.05, 435/7.1, 436/149, 436/164, 436/527, 436/807

ABSTRACT:

A system for biomolecular separation and detection of a molecular species includes a solid state laser detector having a sample channel therein. The presence of a molecular species is indicated by a frequency shift in the laser's output, which is detected by optical heterodyning the laser's output with the output of a reference laser. The interior of the sample channel is optionally coated with a ligand for binding the molecular species of interest. The system involves preprocessing a sample by electroosmotic separation in channels that are lithographically formed in a two-dimensional planar substrate. Molecular separation is also accomplished in a nanostructural molecular sieve comprising spaced apart posts defining narrow channels therebetween.

32 Claims, 18 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 14

☐ 4. Document ID: US 5538850 A

L7: Entry 4 of 6 File: USPT Jul 23, 1996

US-PAT-NO: 5538850
DOCUMENT-IDENTIFIER: US 5538850 A

TITLE: Apparatus and method for intracavity sensing of microscopic properties of chemicals

DATE-ISSUED: July 23, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	N/A	N/A
Seher; Jens-Peter	Stuttgart	N/A	N/A	DEX

US-CL-CURRENT: 435/6; 356/136, 356/301, 356/352, 385/12, 385/36, 422/55, 422/57, 422/82.05, 422/82.08, 422/82.11, 435/287.2, 435/288.7, 435/7.1, 435/808, 436/164, 436/172, 436/518, 436/527, 436/805

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index, and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

29 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 5. Document ID: US 5514596 A

L7: Entry 5 of 6 File: USPT May 7, 1996

US-PAT-NO: 5514596
DOCUMENT-IDENTIFIER: US 5514596 A

TITLE: Method for intracavity sensing of macroscopic properties of chemicals

DATE-ISSUED: May 7, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	94301	N/A
Seher; Jens-Peter	D-7000 Stuttgart 70	N/A	N/A	DEX

US-CL-CURRENT: 436/164; 356/352, 385/36, 436/171, 436/172, 436/805

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index, and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

5 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 6. Document ID: US 5437840 A

L7: Entry 6 of 6 File: USPT Aug 1, 1995

US-PAT-NO: 5437840
DOCUMENT-IDENTIFIER: US 5437840 A

TITLE: Apparatus for intracavity sensing of macroscopic properties of chemicals

DATE-ISSUED: August 1, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; David A.	Palo Alto	CA	N/A	N/A
Seher; Jens-Peter	Stuttgart	N/A	N/A	DEX

US-CL-CURRENT: 422/82.08; 356/136, 356/346, 422/82.11

ABSTRACT:

The presence of trace materials in a sample is detected using both macroscopic and microscopic properties. A detector includes a light source and an optical resonator. The light source may be located either inside the resonance cavity of the resonator or outside the cavity, in which case it may be a semi-conductor such as a semi-conductor laser or a superluminescent diode. The detector also includes at least one reflective member that has a total internal reflection (TIR) surface and may be a passive device or an active gain element. Light from the light source is preferably focussed onto a single point of reflection on the TIR surface. The test sample is positioned within the evanescent field region of the TIR surface. Optical changes arising within the evanescent field region, such as excitation of fluorescence in the sample, changes in its refractive index and changes in the resonant frequency of the optical resonator, are then detected. These changes are then sensed to determine the amount or at least presence of analyte located at the TIR surface.

14 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

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☐ 1. Document ID: US 6078705 A

L9: Entry 1 of 7 File: USPT Jun 20, 2000

US-PAT-NO: 6078705
DOCUMENT-IDENTIFIER: US 6078705 A

TITLE: Sensor platform and method for the parallel detection of a plurality of analytes using evanescently excited luminescence

DATE-ISSUED: June 20, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Neuschafer; Dieter	Muttenz	N/A	N/A	CHX
Duveneck; Gert Ludwig	Bad Krozingen	N/A	N/A	DEX
Pawlak; Michael	Laufenburg	N/A	N/A	DEX
Pieles; Uwe	Schliengen	N/A	N/A	DEX
Budach; Wolfgang	Marly	N/A	N/A	CHX

US-CL-CURRENT: 385/12; 385/37

ABSTRACT:

The invention relates to a sensor platform based on at least two planar, separate, inorganic dielectric waveguiding regions on a common substrate and to a method for the parallel evanescent excitation and detection of the luminescence of identical or different analytes. The invention relates also to a modified sensor platform that consists of the sensor platform having the planar, separate, inorganic dielectric waveguiding regions and one or more organic phases immobilised thereon. A further subject of the invention is the use of the sensor platform or of the modified sensor platform in a luminescence detection method for quantitative affinity sensing and for the selective quantitative determination of luminescent constituents of optically opaque solutions.

26 Claims, 15 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 6

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 6075312 A

L9: Entry 2 of 7 File: USPT Jun 13, 2000

US-PAT-NO: 6075312
DOCUMENT-IDENTIFIER: US 6075312 A

TITLE: Main structure for catching flow-injection type piezoelectric sensor

DATE-ISSUED: June 13, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wu; Tzong-Zeng	Taipei	N/A	N/A	TWX
Chang; I-Nan	Taipei	N/A	N/A	TWX
Lo; Chung-Chih	Taipei	N/A	N/A	TWX
Chan; Wu-Chin	Taipei	N/A	N/A	TWX
Hsu; Ray-Yi	Taipei	N/A	N/A	TWX

US-CL-CURRENT: 310/338

ABSTRACT:

A main structure is intended to engage and disengage an flow-injection type piezoelectric sensor and is composed of a movable stand, a lifting mechanism, and a fixed injection portion. The movable stand is capable of being actuated by a rotary shaft of the lifting mechanism to move upwards or downwards. The movable stand is provided with a retaining slot capable of catching and releasing the flow-injection type piezoelectric sensor. When the movable stand is lifted, a transparent end of the fixed injection portion is in an intimate contact with a planar surface of the flow-injection type piezoelectric sensor which is caught in the retaining slot of the movable stand. A liquid test sample is thus injected into a charge channel of the transparent end such that the liquid test sample flows on the surface of a piezoelectric crystal located in an opening of the planar surface of the flow-injection type piezoelectric sensor for detecting the presence of a target molecule in the test sample.

15 Claims, 12 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 8

☐ 3. Document ID: US 5728583 A

L9: Entry 3 of 7 File: USPT Mar 17, 1998

US-PAT-NO: 5728583
DOCUMENT-IDENTIFIER: US 5728583 A

TITLE: Determination of abnormal part of blood functions

DATE-ISSUED: March 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawakami; Keiko	Kawasaki	N/A	N/A	JPX
Harada; Yoshiyuki	Futtsu	N/A	N/A	JPX
Sakon; Tadashi	Kawasaki	N/A	N/A	JPX
Kishida; Yutaka	Kawasaki	N/A	N/A	JPX
Ikeda; Yasuo	Tokyo	N/A	N/A	JPX

US-CL-CURRENT: 436/69; 310/311, 310/312, 422/73, 422/81, 422/82.01, 422/82.02, 435/13, 435/2, 436/52, 436/86

ABSTRACT:

A method and apparatus for determining an abnormal component of blood functions is described. A whole blood sample is cycled as a laminar flow through a flow cell having a measuring element prepared by plating the surface of a plate-shaped quartz oscillator with a protein layer. The amount of adhesion of the blood component on the protein layer is determined on the basis of the change in resonance frequency of the measuring element. The measured value is compared with a standard value of adhesion for blood from a healthy individual.

11 Claims, 14 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 10

☐ 4. Document ID: US 5653862 A

L9: Entry 4 of 7 File: USPT Aug 5, 1997

US-PAT-NO: 5653862
DOCUMENT-IDENTIFIER: US 5653862 A

TITLE: Biochemical sensor device and method

DATE-ISSUED: August 5, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Parris; Norman Alfred	Hockessin	DE	N/A	N/A

US-CL-CURRENT: 205/777.5; 204/403, 204/409

ABSTRACT:

Degradation of multielectrochemical sensors in a common flow stream is averted by positioning any sensors having as its associated enzyme an oxidoreductase enzyme capable of producing, as a result interaction with its respective substrate, an oxidizing agent downstream of the other enzyme sensors not having such oxidoreductase enzyme.

4 Claims, 3 Drawing figures Exemplary Claim Number: 3
Number of Drawing Sheets: 3

☐ 5. Document ID: US 5427946 A

L9: Entry 5 of 7 File: USPT Jun 27, 1995

US-PAT-NO: 5427946
DOCUMENT-IDENTIFIER: US 5427946 A

TITLE: Mesoscale sperm handling devices

DATE-ISSUED: June 27, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kricka; Larry J.	Berwyn	PA	N/A	N/A
Wilding; Peter	Paoli	PA	N/A	N/A

US-CL-CURRENT: 435/288.5; 422/58, 422/61, 435/259, 435/7.2, 435/7.21, 436/501, 436/524, 436/807, 436/809

ABSTRACT:

Devices and methods are provided for the clinical analysis of a sperm sample. The devices include a solid substrate, typically on the order of a few millimeters thick and approximately 0.2 to 2.0 centimeters square, microfabricated to define a sample inlet port and a mesoscale flow channel extending from the inlet port. In one embodiment, a sperm sample is applied to the inlet port, and the competitive migration of the sperm sample through the mesoscale flow channel is detected to serve as an indicator of sperm motility. In another embodiment, the substrate of the device is microfabricated with a sperm inlet port, an egg nesting chamber, and an elongate mesoscale flow channel communicating between the egg nesting chamber and the inlet port. In this embodiment, a sperm sample is applied to the inlet port, and the sperm in the sample are permitted to competitively migrate from the inlet port through the channel to the egg nesting chamber, where in vitro fertilization occurs. The devices of the invention may be used in a wide range of applications in the analysis of a sperm sample, including the analysis of sperm morphology or motility, to assess sperm binding properties, and for in vitro fertilization.

2 Claims, 15 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 6. Document ID: US 5296375 A

L9: Entry 6 of 7 File: USPT Mar 22, 1994

US-PAT-NO: 5296375
DOCUMENT-IDENTIFIER: US 5296375 A

TITLE: Mesoscale sperm handling devices

DATE-ISSUED: March 22, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kricka; Larry J.	Berwyn	PA	N/A	N/A
Wilding; Peter	Paoli	PA	N/A	N/A

US-CL-CURRENT: 435/2; 422/58, 422/61, 422/947, 435/259, 435/283.1, 435/288.5, 435/29, 435/7.2, 435/7.21, 436/501, 436/524, 436/807, 436/809

ABSTRACT:

Devices and methods are provided for the clinical analysis of a sperm sample. The devices comprise a solid substrate, typically on the order of a few millimeters thick and approximately 0.2 to 2.0 centimeters square, microfabricated to define a sample inlet port and a mesoscale flow channel extending from the inlet port. In one embodiment, a sperm sample is applied to the inlet port, and the competitive migration of the sperm sample through the mesoscale flow channel is detected to serve as an indicator of sperm motility. In another embodiment, the substrate of the device is microfabricated with a sperm inlet port, an egg nesting chamber, and an elongate mesoscale flow channel communicating between the egg nesting chamber and the inlet port. In this embodiment, a sperm sample is applied to the inlet port, and the sperm in the sample are permitted to competitively migrate from the inlet port through the channel to the egg nesting chamber, where in vitro fertilization occurs. The devices of the invention may be used in a wide range of applications in the analysis of a sperm sample, including the analysis of sperm morphology or motility, to assess sperm binding properties, and for in vitro fertilization.

47 Claims, 15 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 9

☐ 7. Document ID: US 5246498 A

L9: Entry 7 of 7 File: USPT Sep 21, 1993

US-PAT-NO: 5246498
DOCUMENT-IDENTIFIER: US 5246498 A

TITLE: Process and apparatus for producing thin layers

DATE-ISSUED: September 21, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nitsch; Walter	Feldafing	N/A	N/A	DEX
Kurthen; Christoph	Munich	N/A	N/A	DEX

US-CL-CURRENT: 118/429; 118/402, 118/425, 427/402, 427/434.3, 428/339, 428/411.1

ABSTRACT:

A process for producing a thin layer of at least one amphiphilic compound on a carrier is described, in which an at least partially oriented layer of molecules of an amphiphilic compound is produced by compression and expansion at the interface between a fluid and a polar liquid, and a solid carrier is moved through the layer so that the layer is transferred thereto. For this purpose, a directional flow of the polar liquid which contains amphiphilic molecules in solution or as insoluble molecules in a spread form on the surface is generated in an approximately horizontally located channel and the flow is dammed at a barrier which is located at the fluid/polar liquid interface. The flow velocity and, if appropriate, the concentration of the amphiphilic molecules are selected such that a layer of amphiphilic molecules is continuously formed by compression in front of the barrier at the fluid/polar liquid phase boundary. An apparatus suitable for this purpose comprises a horizontally arranged flow channel for taking up a liquid, a barrier arranged at the phase boundary for damming the surface flow in the channel, a device for generating the flow of the liquid and a device for controlled slow immersion of a solid carrier into the channel and emergence therefrom in proximity to the weir.

38 Claims, 6 Drawing figures Exemplary Claim Number: 1,12
Number of Drawing Sheets: 4